

# PATENT SPECIFICATION

DRAWINGS ATTACHED

860,918



Date of Application and filing Complete  
Specification: Nov. 28, 1958.  
Application made in Germany on Nov. 29, 1957.  
Complete Specification Published: Feb. 15, 1961.

No. 38473/58

Index at Acceptance:—Classes 20(4), V(5 : 13); and 83(4), U3.

International Classification:—B23j. E04b.

## COMPLETE SPECIFICATION

### Improvements relating to Containers, particularly for Housing High or Low Temperature Installations and Apparatus, preferably with Insulation therefor

We, GESELLSCHAFT FÜR LINDE'S EIS-MASCHINEN AKTIENGESELLSCHAFT, a German Company, of Zweigniederlassung Hollriegelskreuth, Hollriegelskreuth bei München, Germany,

5 do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

10 This invention relates to containers, particularly for housing high or low temperature installations and apparatus, preferably with insulation therefor.

Containers for housing high or low temperature installations and apparatus and insulation therefor have hitherto comprised a basic framework composed of rolled section bar material and wall elements mounted thereon and consisting of sheet metal plates affixed to 15 angle section frame members, the construction being one in which the fixing areas of the wall elements are perpendicular to the planes of the plates forming these elements, the elements being affixed to the bars of the basic framework 20 by means of the angle section frame members.

Since a number of said wall elements are used to form the container, it sometimes happens, even with accurate manufacture of the parts of the container, that unavoidable errors in 25 manufacture result by their cumulative effect in the wall elements failing to fit into the basic framework. In consequence additional costly work is required in order to correct the inaccuracies.

30 Moreover, in the case of large containers, several manholes or doors have to be provided in the wall of the container to afford access to the interior thereof. This is because it is generally impossible to reach the location of 35 say a necessary repair within the container by simply removing a single wall element; in most cases it is necessary to remove several elements.

The object of the present invention is to 40 provide an improved construction in which

these drawbacks are avoided in a simple and effective manner.

The invention consists in a container more particularly for housing high or low temperature installations or apparatus, preferably with insulation therefor, formed as regards a wall or walls thereof of at least one pair of plates which are detachably affixed along marginal portions thereof to a framing member extending lengthwise of said marginal portions and disposed on the side of the plates which is towards the interior of the container, said framing member being of open-section form with the gap in the section located on the side thereof remote from the interior of the container, said marginal portions being affixed to a flange or flanges forming part of the framing member and the interior space of the framing member behind said flange or flanges being accessible from the exterior of the container by way of 55 said gap.

The invention includes a container of the above construction wherein the framing members are connected to one another in such a manner as to form a frame which is a rigid 60 65 entity independently of the plates.

In the improved construction according to the invention the fixing areas of the plates forming the walls of the container, namely the marginal portions aforesaid, lie in planes 70 75 which are parallel to those of the fixing areas of the framing members, namely the flanges aforesaid. In consequence unavoidable dimensional variations are balanced out for each plate. For example if the plates are of 80 different size, the difference can be allowed for by having a different marginal portion overlapping the respective flanges. Moreover, the improved construction has the great advantage that doors or manholes can sometimes be 85 dispensed with, wholly or for the greater part, as each plate of a wall can be dismantled and re-erected singly and independently of the remainder of the plates of the wall; thus on account of the freely accessible gaps in the 90

framing members the connections, which may be bolted connections, by which the plates are secured to the flanges of the framing members can be reached from the outside of the container at any time and independently of the connections of other plates.

A further advantage inherent in the improved construction according to the invention is that it avoids the necessity of forming weld seams 10 of considerable length, also correcting work after welding, which is necessary with the known construction referred to above.

If desired, strips of sealing material may be inserted between the flanges of the framing 15 members and the marginal portions of the plates detachably affixed thereto.

In this event, the edges of said marginal portions may be inturned so as to cover the adjacent edges of the sealing strips, thereby 20 protecting them and at the same time stiffening the plates against distortion. The portions of the plates immediately adjacent said marginal portions may be bent inwardly of the container so as to cover the adjacent edges of the sealing 25 strips, thereby protecting them and stiffening the plates as in the case of the inturned edges of the plates.

The component material of the container, as regards the plates and framing members, 30 will usually be steel.

The invention will now be further described with reference to the accompanying drawings, which illustrate several embodiments by way of example.

35 In these drawings, in which like reference numerals are applied to like parts:

Figure 1 is a cross-section through a framing member 1 and two neighbouring plates 2 and 3 detachably affixed thereto and lying in the same plane. The plates 2 and 3, which are composed of steel, are affixed to the framing member 1, which is also composed of steel plate bent to the cross-sectional shape shown, by means of connections 4 and 5, which are 40 preferably removable, and sealing strips 6 are inserted between the fixing areas, i.e. between the marginal portions  $a, b$  of the plates and the flanges  $c, d$  of the framing members. The backs of the connections 4 and 5 are accessible 45 from the outside of the container through a gap 7 formed by the space between the free edges  $e, f$  of the flanges  $c, d$ ;

Figure 2 is a horizontal elevation through a container, generally marked 8, which is built up from framing members 1 located at spaced intervals along the side and end walls of the container and other framing members 9 located at the corners of the container, and from flat plates 2 and 3 detachably affixed to the 50 framing members.

It will be seen that, even in the case of the framing members 9 at the corners of the container, the backs of the connections joining the framing members and the plates 2 and 3 are 55 accessible through a gap 10. The framing

members 1 are of the section illustrated in Figure 1, according to which they are of substantially U-shape in section, the section comprising a web portion  $g$  and two flange portions  $h, i$ , said flange portions carrying the flanges  $c$  and  $d$ . The framing members 9 are of a section comprising two main flanges  $j, k$  at right angles to one another and two other flanges  $l, m$  extending lengthwise along the flanges  $j, k$  at the edges thereof remote from the meeting point of these flanges;

Figure 3 is a cross-section through a framing member 1 detachably affixed to flat plates 2 and 3, the framing member, which is composed of bent steel plate, being stiffened by a steel rolled section bar 11 welded to the web portion  $g$  of the framing member. The presence of the stiffeners 11 results in a strengthening of the whole construction, and it will be seen that the backs of the connections 4 and 5 are accessible 80 through gaps  $7a, 7b$  respectively formed by the spaces between the free edges  $e, f$  of the flanges  $c, d$  and the web portion of the stiffener 11. The edges of the plates 2 and 3 are inturned at 12 and 13 respectively and in the particular 85 embodiment illustrated plate 3 is stiffened by the presence of a groove 14 pressed in the plate. The inturned edges of the plates serve to stiffen the latter and, along with the wall of the groove 14 adjacent the flange  $d$ , to prevent 90 the sealing strips 6 from spreading;

Figure 4 illustrates, purely by way of example, the use to form the framing members of rolled section bar material. The construction shown is one in which the framing member 1 is formed by a rolled H-section bar having strips  $n, o$  to constitute the flanges of the member to which the plates 2 and 3 are detachably affixed by welding to the edges of the bar. As in the previously described constructions, sealing strips 6 are inserted between the flanges formed by the strips  $n, o$  and the marginal portions of the plates 2, 3;

Figure 5 is a perspective view of part of a container constructed in accordance with the invention, the view showing part of a side or end wall of the container and part of the top wall thereof. It will be seen that the framing members 1 of the side (or end) and top walls are of the form illustrated in Figure 1, and those 1a which extend along the junctions of the side (or end) walls and top wall are of a form similar to that of the framing members 9 (Figure 2) which are provided at the four corners of the container at which the end walls 110 meet the side walls.

#### WHAT WE CLAIM IS:—

1. A container formed as regards a wall or walls thereof of at least one pair of plates which are detachably affixed along marginal portions thereof to a framing member extending lengthwise of said marginal portions and disposed on the side of the plates which is towards the interior of the container, said framing member being of open-section form with the 115

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gap in the section located on the side thereof remote from the interior of the container, each of said marginal portions being affixed to a flange or flanges forming part of the framing member and the interior space of the framing member behind said flange or flanges being accessible from the exterior of the container by way of said gap.

2. A container according to Claim 1, wherein the framing members are connected to one another in such a manner as to form a frame which is a rigid entity independently of the plates.

3. A container according to Claim 1 or Claim 2, said container having two walls which meet at an angle so as to form a corner of the container, wherein the framing member is located at said corner, said framing member extending lengthwise of the corner and the plates whose marginal portions are affixed to the flanges of the frame member forming respectively said walls.

4. A container according to Claim 3, wherein the framing member at the corner of the container has a form such that its section comprises two main flanges at an angle to one another and two other flanges extending respectively along the main flanges at the edges thereof remote from the meeting point of the flanges, said other flanges being the flanges to which the plates are affixed.

5. A container according to Claim 1 or Claim 2, wherein the plates lie in the same general plane and the framing member has a form such that its section comprises a web portion whose general plane is substantially parallel to said general plane of the plates, two portions whose general planes are at an angle to said general plane of the web portion and two further portions forming respectively the flanges of the member to which the plates are affixed.

6. A container according to Claim 5, wherein the framing member is substantially U-shaped in section as regards said web portion and said portions whose general planes are at an angle to the general plane of the web portion.

7. A container according to Claim 5, wherein the framing member is substantially H-shaped in section with the flanges of the member to which the plates are affixed carried upon the edges of the two flanges of the H at one end thereof.

8. A container according to Claim 7, wherein the framing member is formed of a rolled H-section bar having strips to constitute the flanges to which the plates are affixed secured, for example by welding, to the edges of the bar.

9. A container according to any of the Claims 1 to 6, wherein the framing members are formed of sheet material bent to shape as regards the cross-sectional form of the member.

10. A container according to Claim 9, more especially such a container of the construction specified in Claim 6, wherein the framing member incorporates a stiffener therefor formed of rolled section bar material, said stiffener being affixed to a portion of the framing member located between the portions thereof carrying the flanges to which the plates are affixed, on the side thereof towards the exterior of the container.

11. A container according to Claim 1 or Claim 2, wherein the framing members are formed, at least in part, of rolled section bar material.

12. A container according to any of the preceding claims, wherein strips of sealing material are inserted between the flanges of the framing member and said marginal portions of the plates.

13. A container according to any of the preceding claims, wherein the edges of said marginal portions of the plates are inturned so as to cover the adjacent edges of the sealing strips.

14. A container according to Claim 12 or Claim 13, wherein portions of the plates immediately adjacent said marginal portions thereof are bent inwardly of the container so as to cover the adjacent edges of the sealing strips.

15. A container constructed substantially as herein described with reference to the accompanying drawings.

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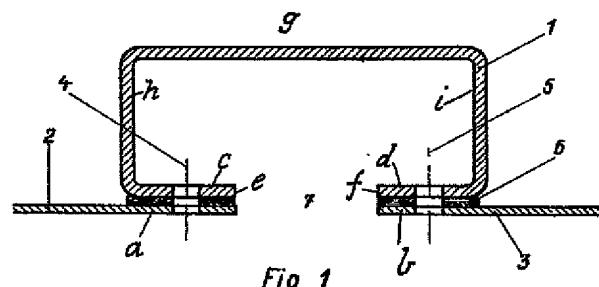
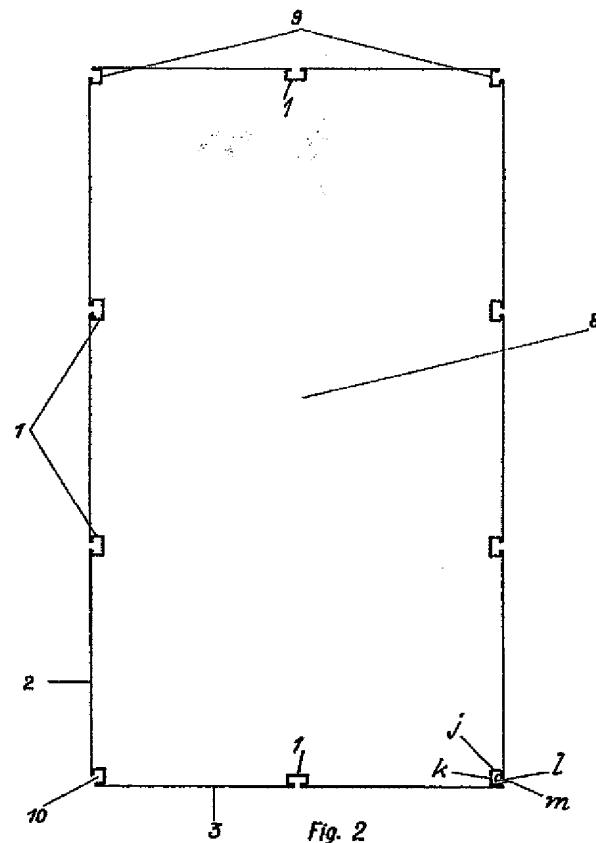
860,918 COMPLETE SPECIFICATION

3 SHEETS

## COMPLETE SPECIFICATION

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SHEET 1



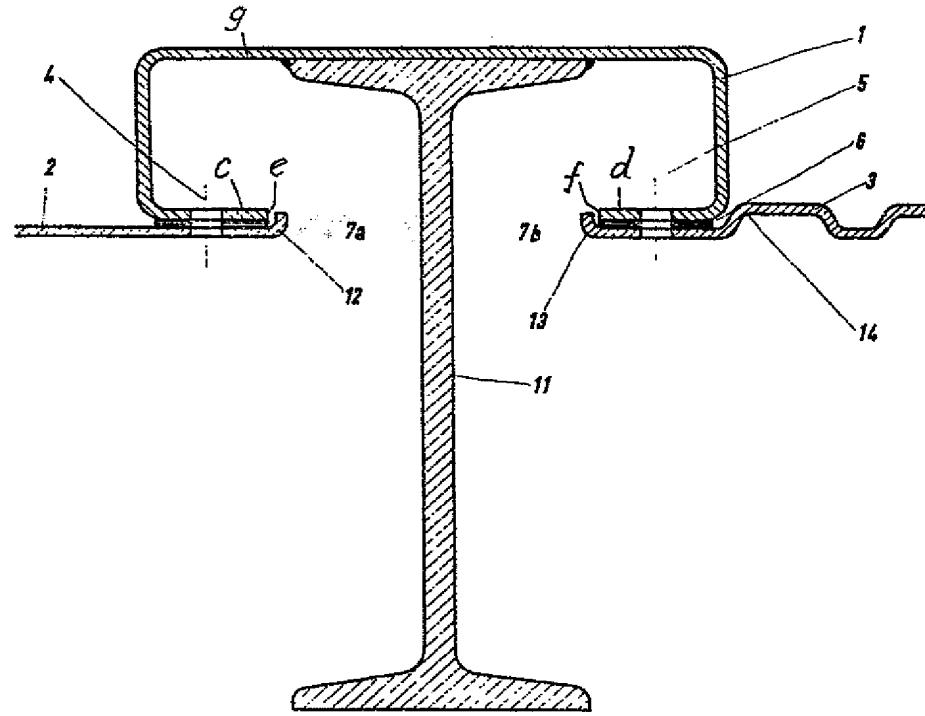


Fig. 3

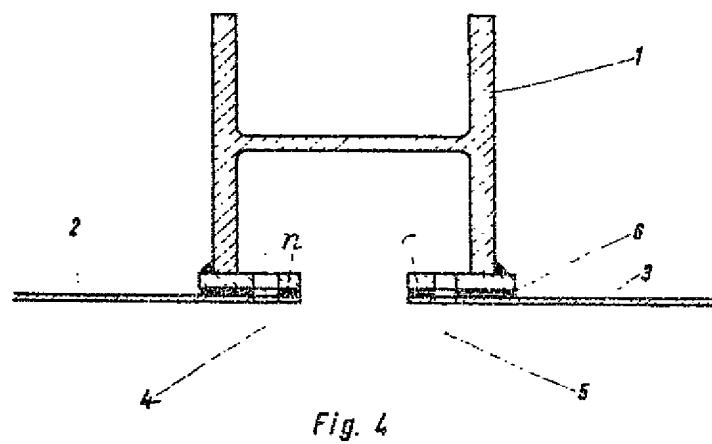


Fig. 4

860,918 COMPLETE SPECIFICATION  
3 SHEETS *This drawing is a reproduction of*

This drawing is a reproduction of  
the Original on a reduced scale.  
SHEETS 2 & 3

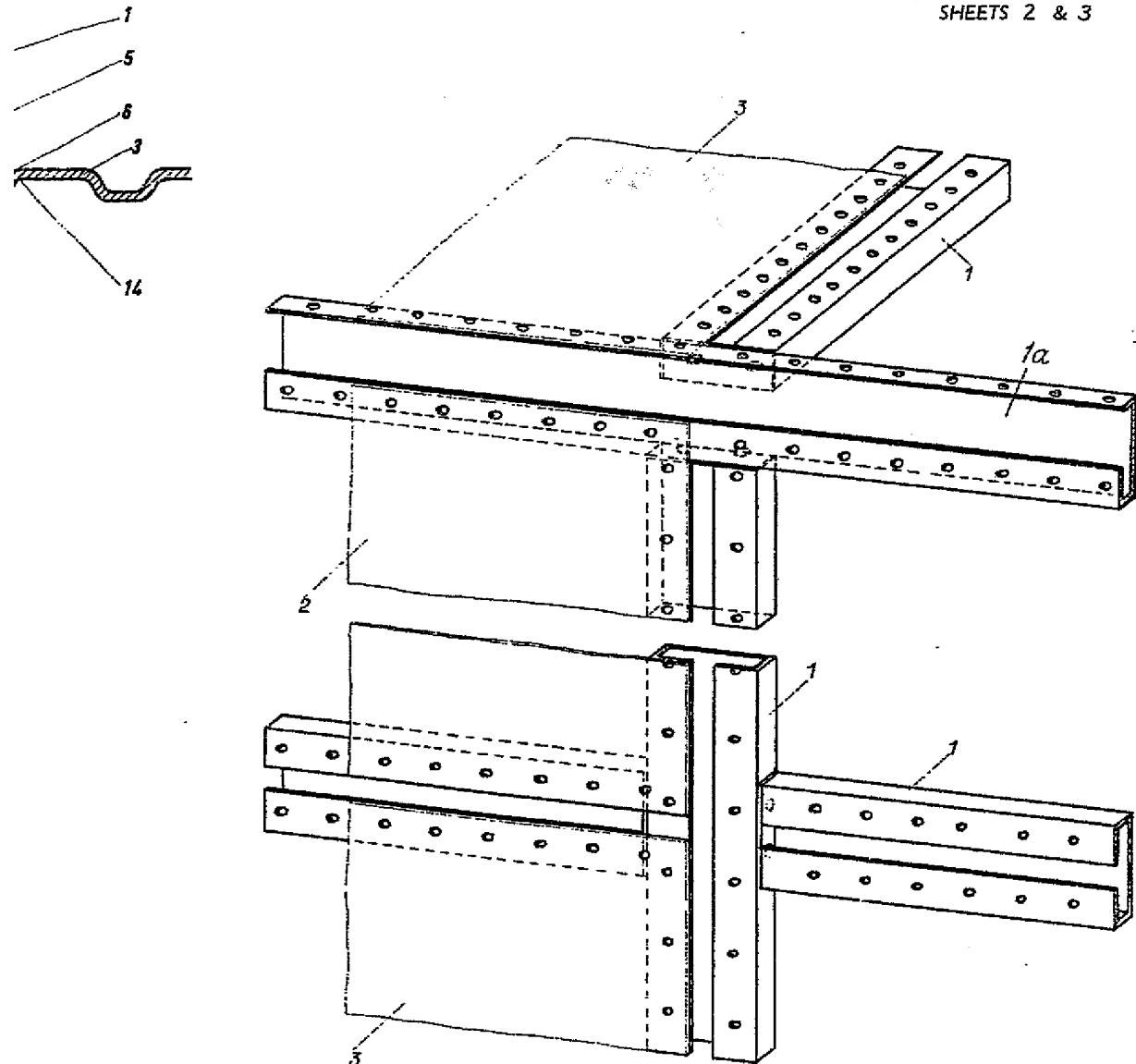
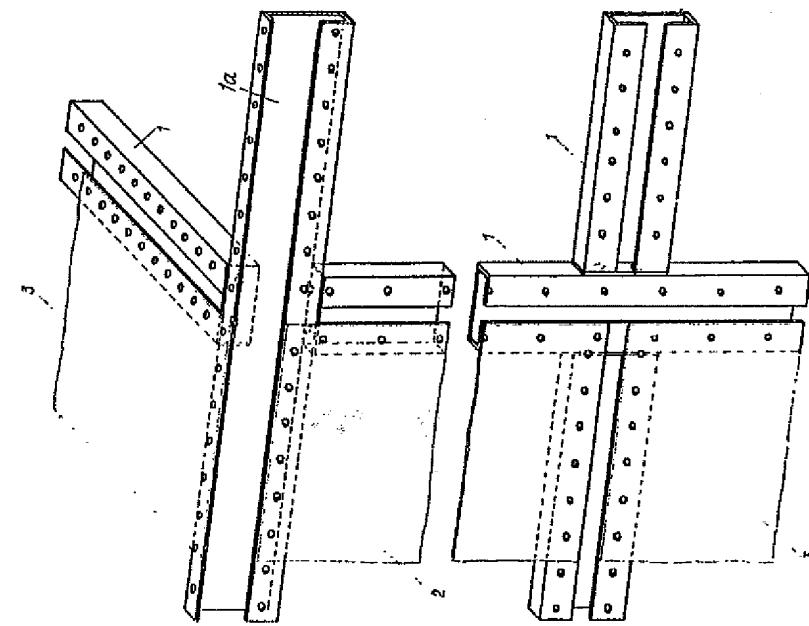
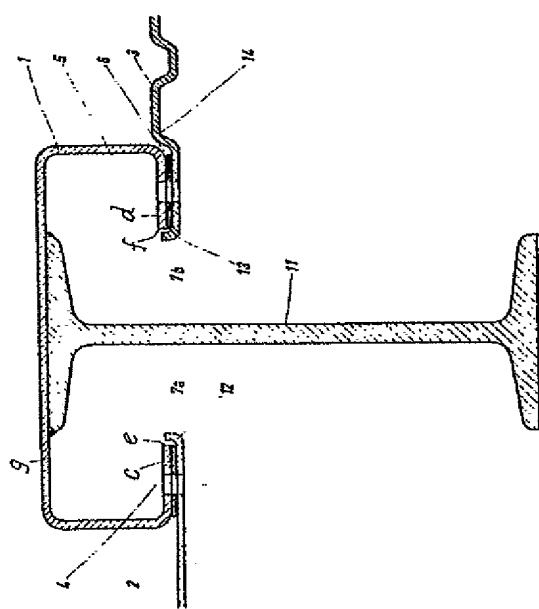


Fig. 5

860,918 COMPLETE SPECIFICATION  
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the original on a reduced scale.  
SHEETS 2 & 3



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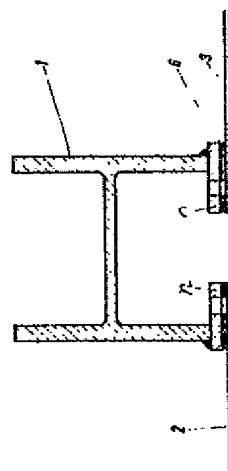


Fig. 4